WHAT IS CLAIMED IS:

1. An engine cooling device comprising:

a cooling circuit that is so constructed as to include a radiator passage for causing cooling medium flowing from a body of an engine to flow into the body of the engine via a radiator, a bypass passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine without flowing via the radiator, and a control valve for controlling a flow rate of cooling medium flowing through the bypass passage;

a heat-accumulating passage that is provided with a heat-accumulating container for storing the cooling medium in a thermally insulated state and that constitutes a heat-accumulating circuit for causing the cooling medium in the heat-accumulating container to circulate via the body of the engine by being selectively connected to the cooling circuit; and

a controller that i) completes the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit to supply the cooling medium in the heat-accumulating container to the body of the engine and opens the control valve to increase a flow rate of cooling medium flowing through the bypass passage, and then ii) disconnects the heat-accumulating passage from the cooling circuit and that closes the control valve.

2. The cooling device according to claim 1, wherein

the cooling circuit is so constructed as to further include a throttle passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine via a throttle body, and a throttle open-close valve for opening and closing the throttle passage, and

the controller opens the throttle open-close valve in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and closes the throttle open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

3. The cooling device according to claim 1, wherein

the cooling circuit is so constructed as to further include a heater passage for causing cooling medium flowing out from the body of the engine to flow into the body of

the engine via a heater core, and a heater open-close valve for opening and closing the heater passage, and

the controller opens the heater open-close valve in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and closes the heater open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

4. The cooling device according to claim 3, wherein

the cooling circuit is so constructed as to further include a throttle passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine via a throttle body, and a throttle open-close valve for opening and closing the throttle passage, and

the controller opens the throttle open-close valve in supplying the cooling medium in the heat-accumulating container to the body of the engine by connecting the heat-accumulating passage to the cooling circuit, and closes the throttle open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

5. The cooling device according to claim 1, wherein

the controller prohibits the heat-accumulating passage from being connected to the cooling circuit if cooling medium in the heat-accumulating container is at a temperature lower than a predetermined temperature.

6. The cooling device according to claim 5, wherein

the predetermined temperature is a temperature of coolant for cooling the body of the engine.

7. The cooling device according to claim 1, wherein

the controller connects the heat-accumulating passage to the cooling circuit if cooling medium for cooling the body of the engine is at a temperature lower than a predetermined temperature.

8. The cooling device according to claim 7, wherein

the predetermined temperature is a cold-state criterion temperature.

9. The cooling device according to claim 7, wherein

the predetermined temperature is an outside air temperature.

10. The cooling device according to claim 1, wherein

the controller closes the radiator passage both in opening the control valve and in closing the control valve.

11. The cooling device according to claim 1, wherein

the controller i) completes the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit and opens the control valve prior to an operation of starting the engine, and ii) disconnects the heat-accumulating passage from the cooling circuit and closes the control valve immediately after the engine has been started.

12. The cooling device according to claim 11, wherein

the cooling circuit is so constructed as to further include a throttle passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine via a throttle body, and a throttle open-close valve for opening and closing the throttle passage, and

the controller opens the throttle open-close valve in supplying cooling medium in the heat-accumulating container to the body of the engine by connecting the heat-accumulating passage to the cooling circuit, and closes the throttle open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

13. The cooling device according to claim 11, wherein

the cooling circuit is so constructed as to further include a heater passage for causing cooling medium flowing out from the body of the engine to flow into the body of

the engine via a heater core, and a heater open-close valve for opening and closing the heater passage, and

the controller opens the heater open-close valve in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and closes the heater open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

14. The cooling device according to claim 13, wherein

the cooling circuit is so constructed as to further include a throttle passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine via a throttle body, and a throttle open-close valve for opening and closing the throttle passage, and

the controller opens the throttle open-close valve in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and closes the throttle open-close valve in disconnecting the heat-accumulating passage from the cooling circuit.

15. The cooling device according to claim 11, wherein

the controller determines that the engine has just been started, if cooling medium for cooling the body of the engine is at a temperature lower than a predetermined temperature.

16. The cooling device according to claim 11, wherein

the controller determines that the engine has just been started, unless a predetermined time has elapsed since completion of the starting of the engine.

17. An engine cooling method comprising the steps of:

causing cooling medium to flow through a cooling circuit that is so constructed as to include a radiator passage for causing cooling medium flowing from a body of an engine to flow into the body of the engine via a radiator, a bypass passage for causing

cooling medium flowing out from the body of the engine to flow into the body of the engine without flowing via the radiator, and a control valve for controlling a flow rate of cooling medium flowing through the bypass passage;

causing the cooling medium to flow through a heat-accumulating passage that is provided with a heat-accumulating container for storing the cooling medium in a thermally insulated state and that constitutes a heat-accumulating circuit for causing the cooling medium in the heat-accumulating container to circulate via the body of the engine by being selectively connected to the cooling circuit;

completing the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit to supply the cooling medium in the heat-accumulating container to the body of the engine and opening the control valve to increase a flow rate of cooling medium flowing through the bypass passage; and

disconnecting the heat-accumulating passage from the cooling circuit and closing the control valve after opening the control valve.

18. The cooling method according to claim 17, wherein

the control valve is opened before an operation of starting the engine, and

the control valve is closed immediately after the engine has been started.

19. The cooling method according to claim 17, wherein

the cooling circuit is so constructed as to further include a throttle passage for causing cooling medium flowing out from the body of the engine to flow into the body of the engine via a throttle body, and a throttle open-close valve for opening and closing the throttle passage, and

the throttle open-close valve is opened in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and is closed in disconnecting the heat-accumulating passage from the cooling circuit.

20. The cooling method according to claim 17, wherein

the cooling circuit is so constructed as to further include a heater passage for causing cooling medium flowing out from the body of the engine to flow into the body of

the engine via a heater core, and a heater open-close valve for opening and closing the heater passage, and

the heater open-close valve is opened in supplying cooling medium in the heat-accumulating container to the body of the engine through the heat-accumulating circuit by connecting the heat-accumulating passage to the cooling circuit, and is closed in disconnecting the heat-accumulating passage from the cooling circuit.

21. The cooling method according to claim 17, wherein

the heat-accumulating passage is prohibited from being connected to the cooling circuit if cooling medium in the heat-accumulating container is at a temperature lower than a predetermined temperature.